

REMARKS

Summary of Office Action

Claims 1-14, 17-23, 25-30, 33-43, 46-49, 52, 53, 56, 57 and 60-73 are pending in the above-identified patent application. Of those, each of claims 60 and 61 has been withdrawn from consideration as being drawn to a nonelected invention, and each of claims 62-73 has been withdrawn from consideration as being drawn to a nonelected species.

The Examiner has rejected claims 4-6, 8, 9, 18, 48, 52 and 56 under 35 U.S.C. § 112, first paragraph, as allegedly having scope beyond what is enabled by applicant's specification. Claims 4-10, 17-20, 25-27, 34, 38-40 and 47 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. Claims 1-14, 17-23, 25-30, 33, 34, 48, 49, 52 and 53 have been rejected under 35 U.S.C. § 101 as allegedly being drawn to nonstatutory subject matter. Claims 1-14, 17-23, 25-30, 33-43, 46-49, 52, 53, 56, 57 have been rejected under 35 U.S.C. § 103(a) as allegedly being obvious from certain prior art allegedly admitted by applicant, in view of Pilipovic U.S. Patent 6,456,982.*

The Examiner also has objected to claims 22, 35, 48, 52 and 56 because of an enumerated informality.

Summary of Applicant's Reply

Applicant has amended claims 5, 7, 8, 19, 20, 35, 36, 38-40, 46, 47 and 56 in order to more particularly define

* The Examiner continues to include claim 24 in some of these rejections even though claim 24 was cancelled in applicant's previous reply, as acknowledged by the Examiner in the correct lists of pending claims in both the Office Action Summary (Form PTOL-326) and the Detailed Action (Page 2).

the invention. The Examiner's objection and rejections are respectfully traversed.

Applicant's Reply to the
The Claim Objections

The Examiner has objected to claims 22, 35, 48, 52 and 56 because of a perceived inconsistency in references to "data that represents price in a financial system," "price data" and "data." In the previous Office Action, this same objection was applied to these claims, as well as to claim 1. In his reply to the previous Office Action, in order to advance prosecution of this application, applicant amended these claims to define "price data" as "representing price in a financial system," leaving all antecedent references to "price data."

That should have obviated the objection. However, The Examiner now states that applicant amended only claim 1, and that claims 22, 35, 48, 52 and 56 remain subject to the objection. This objection is respectfully traversed. All claims subject to this objection were amended in the previous reply in the same way relative to this objection. The Examiner has admitted that the amendment was effective in overcoming the objection as to claim 1. Therefore it should be effective as to the remaining claims that are subject to the objection. The Examiner is invited to review the pending versions of these claims, above, and to compare them to those in the previous reply to verify the amendments that were previously made, and then to withdraw the objection.

Applicant's Reply to the Rejection
Under 35 U.S.C. § 112, First Paragraph

Claims 4-6, 8, 9, 18, 48, 52 and 56 have been rejected under 35 U.S.C. § 112, first paragraph, as allegedly having scope beyond what is enabled by applicant's specification. This rejection is respectfully traversed.

The rejection as stated at Pages 5-6, ¶ 10, of the Office Action is that "[a]pplicant discloses only a single formula for generating an expected data range" while "[a]pplicant's claim language is an attempt to cover all methods of predicting ranges of data which have some connection to Brownian motion." However, the claims that are subject to this rejection are limited to that single formula (indeed, claims 5, 8 and 9 are even more narrowly limited to the single formula than are the remaining claims that are subject to this rejection).

The rejection is stated differently in the Examiner's response to applicant's previous argument (Action, pages 2-3, ¶ 3). There, the Examiner states that the claims "tr[y] to determine a relationship between two random motion events AND there is no where [sic] in the specification that discloses how this is supposed to happen. Therefore, there is no enablement in [the] claim, in the specification, or even well known in the art, that allows for comparing the data to ranges based on any and all interpretations of Brownian motion" (emphasis in original).

However, the claims subject to this rejection are narrower than "any and all interpretations of Brownian motion." Rather, these claims are limited to the single formula, as noted above.

The Examiner appears to be concerned with the fact that the claims call for comparing changes over two different time durations. But there is a relationship between the two time durations -- they both begin at the same initial moment (e.g., claim 4 refers to "said first initial moment," referring back to claim 1), and one is a subset of the other (claim 4 defines the second duration as starting at the same initial moment as the first duration and defines the first duration as a multiple of -- i.e., longer than -- the second duration; therefore the second duration is a subset of the first duration). The specification explains how those time

periods are related. The Examiner even recognizes that explanation in her prior art rejection, in the paragraph bridging pages 10 and 11 of the Office Action.

Both the specification and the claims define the calculations to be made. Therefore both tell the reader what to do -- i.e., they enable the invention. From the remainder of the Office Action, it appears that the Examiner does not believe applicant's explanation of why the invention works. But enablement requires only that the application teach the reader what to do. An explanation is not even required, and therefore it does not matter whether the Examiner believes the explanation. The specification and claims set forth a "recipe" that can be followed without undue experimentation (indeed, without any experimentation at all), and therefore the claims are enabled.

For at least the foregoing reasons, applicant respectfully requests that the rejection under 35 U.S.C. § 112, first paragraph, be withdrawn.

Applicant's Reply to the Rejection
Under 35 U.S.C. § 112, Second Paragraph

Claims 4-10, 17-20, 25-27, 34, 38-40 and 47* have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. This rejection is respectfully traversed.

With regard to claims 4, 6, 17 and 18, the concern under 35 U.S.C. § 112, second paragraph, is that "[i]t is not clear how either 'relationship' is quantified, nor how the 'expected relationship' is determined. Examiner [sic] assumes

* The Examiner also included claim 24 in this rejection. However, as noted above, claim 24 was cancelled in the previous reply.

that the 'actual relationship' is computed, in some way, based on the actual (acquired) data, however, it is not clear where the expected relationship comes from" (Action, Page 6).

This particular portion of the rejection is repeated verbatim from the previous rejection, even though applicant in the previous reply amended claims 4, 6 and 18 to confirm the Examiner's assumption regarding the actual relationship -- i.e., that that relationship is computed.

With regard to the expected relationship, each of these claims ultimately depends from claim 1 (which is not subject to this rejection) which defines an expected relationship. In that connection, the Examiner is referred to the discussion on pages 26-27 of applicant's previous reply addressing the rejection under 35 U.S.C. § 112, first paragraph, where it is explained that the specification discloses at least two ways to determine the expected relationship -- i.e., a computational technique or a hardware standard generator.

Indeed, the computational technique is further defined in claims 5 and 8 and applicant has amended those claims to clarify that.

Therefore, it should be clear where the "expected relationship" comes from.

With respect to claims 4-6, 8, 9, 18, 25-27, 34, 38-40 and 47, the Examiner is concerned about the drawing of multiple different conclusions. In this connection, as discussed at page 31 of the previous reply, at least Paragraph [0043] of applicant's specification describes how, at any given moment, one may want to look back on different time scales -- e.g., inter alia, hourly, daily, weekly and annually -- because while a system may be in one condition on one time scale, the same system may be in a different condition on a different time scale. For example, on an intra-day basis (i.e., an hourly time scale), a market may be in a trend, while that same market may be in a congestion

condition when viewed on a weekly time scale. Similar differences may exist between observations on other longer (monthly, annually, etc.) and shorter (minutes, seconds, etc.) time scales. And in addition to looking back over different time scales at any given moment, one may choose to look back at different initial moments as well (e.g., to see if a trend, when one exists, is changing, or if a congestion, when one exists, is ending; these are just examples). Therefore, the claims, which define these multiple "look-backs," are believed to be definite.

The Examiner has singled out claim 9, in particular, as "not conform[ing] to the boundaries of claim 1." The Examiner states (Action, Pages 3-4):

"[C]laim 1 requires: first, that if a first range exceeds an expected price range then the system is varying in a trend; second, that if a first range is less than an expected price range then the system is congesting. Claim 8 adds further limitations: third, when a first range exceeds a square root of said multiple, the system is varying in a trend; and fourth, when said ratio is less than the square root, the system is congesting. Claim 9 combines these four boundaries in a very confusing manner."

First, applicant notes that there are not four limitations involved, but two. Claim 8, as amended, does not add further limitations, but rather refines the limitations of claim 1.

Second, applicant respectfully submits that thus understood, claim 9 is not confusing at all. Rather it clearly defines identifying the significance of the various combinations of results of comparisons of long-vs.-short periods sharing a first starting point to long-vs.-short periods sharing a second starting point, as explained at Paragraphs [0036-0039] of the specification with regard to FIG. 5.

With regard to claim 7, the Examiner states that it is not clear which steps are repeated because there are multiple instances in the antecedent claims of "acquiring," "comparing" and "determining." Similar rejections are made relative to claims 19 and 20. However, applicant respectfully notes that claim 7, as amended in the previous reply and currently, does not merely refer to repeating "acquiring," "comparing" and "determining." Rather, it refers to repeating "acquiring said price data during each respective subsequent first duration," "acquiring said price data during each respective subsequent second duration," "computing a respective actual relationship of each respective subsequent first range to each respective subsequent second range," "comparing each respective actual relationship of each respective subsequent first range to each respective subsequent second range to a respective expected relationship of each respective subsequent first range to each respective subsequent second range to obtain a respective comparison," and "determining from each respective comparison how said system is varying," each of which is uniquely defined. The same is true of claims 19 and 20 as amended in the previous reply.

Therefore, it should be clear in claims 7, 19 and 20 which steps are being repeated.

With respect to claim 10, the Examiner notes that the claim fails to further limit claim 9 in the erratically varying case. This rejection is repeated verbatim from the previous Office Action. However, in the previous reply, applicant amended the erratically varying case out of claim 1. Accordingly, this rejection no longer applies.

For at least the foregoing reasons, applicant respectfully requests that the rejection under 35 U.S.C. § 112, second paragraph, be withdrawn.

Applicant's Reply to the
Rejection Under 35 U.S.C. § 101

Claims 1-14, 17-23, 25-30, 33, 34, 48, 49, 52 and 53* have been rejected under 35 U.S.C. § 101 as allegedly being drawn to nonstatutory subject matter. This rejection is respectfully traversed.

As method claims, claims 1-14, 17-21, 48 and 49 have been rejected under the "machine-or-transformation test" set out in In re Bilski, 545 F.3d 943, 88 USPQ2d 1385 (Fed. Cir. 2008), and endorsed as a valid test (even if it is not the only test) by the U.S. Supreme Court in Bilski v. Kappos, 561 U.S. ____ (2010), as not being tied to a particular machine or transforming an article to a different state or thing. However, applicant respectfully submits that these claims do in fact meet at least the "transformation prong" of the machine-or-transformation test.

Specifically, one transformation that previously had been held to be statutory and that was endorsed in In re Bilski was a transformation of data that is not viewable by a human observer into a state that is viewable by a human observer. In the example cited, the transformation was of X-ray attenuation data into an image of human tissue. In re Bilski, 543 F.3d at 962-63, 88 USPQ2d at 1397, citing In re Abele, 684 F.2d 902, 908-09, 214 USPQ 682, 687 (CCPA 1982). Here, instead, the transformation is of data representing the Brownian motion condition of a system from a state that is not viewable to a state that is (i.e., an indication of trending or congestion).

The situation is analogous to the measurement of the temperature of a physical system. Temperature is an underlying physical truth -- all matter has a temperature.

* Once again, the Examiner also included claim 24 in this rejection. However, as noted above, claim 24 was cancelled in the previous reply.

But had Gabriel Fahrenheit (or one of his predecessors in the development of the thermometer) been applying, even under the current statutory regime, for a patent for a method of measuring temperature by placing a material with a known coefficient of thermal expansion into contact with matter whose temperature is to be measured and watching the expansion or contraction of that material, it is hard to imagine that that application would have been denied. Applicant's method is no different from a Section 101 perspective. The fact that Fahrenheit gathered and processed data in an analog manner from the system being measured, using the expansion and contraction of a working fluid (e.g., alcohol or mercury), while applicant gathers and processes data in a digital manner from the system being measured, should not make a difference. Fahrenheit allowed the visualization of temperature; applicant allows the visualization of Brownian motion condition.

For at least these reasons, claims 1-14, 17-21, 48 and 49 should be considered statutory. Applicant advanced these reasons in the previous reply. However, the Examiner has not addressed them, and accordingly applicant is resubmitting them.

As means-plus-function claims, claims 22-30, 33, 34, 52 and 53 have been rejected because the Examiner alleges that under their broadest reasonable interpretation, the recited "means" could include software elements, resulting in the claims reading on software per se. Applicant respectfully disagrees.

Applicant understands that rejections such as that have been made and upheld in cases where means-plus-function claims have been introduced in their preambles as defining a "system" and the elements of that system could have been interpreted as pure software. In such cases, the rejections may have had merit because the term "system" can include a method -- e.g., as in a "system" for picking racehorses, lottery numbers, etc., on which to bet. However, the claims

in question here have been presented as "apparatus" claims -- not as "system" claims. While applicant understands that preamble limitations are not always given patentable weight, applicant respectfully submits that that cannot be the case with words that define the statutory class being claimed. Therefore, applicant's claims must be interpreted as apparatus in which the software elements (assuming, arguendo, that that is what they are) are implemented in the disclosed hardware (see, e.g., Paragraphs [0044]-[0049] of applicant's specification).

Applicant further notes that the Examiner relies on the description of software in Paragraph [0046] to justify the characterization of applicant's claim elements as software per se. However, the software described in Paragraph [0046] is described as working in conjunction with hardware, so even if were relevant to the pending claims, they could not be said to be directed software per se.

More importantly, the software described in Paragraph [0046] is described only in connection with enabling distributed computing over a plurality of described computers, which is the nonelected invention of withdrawn claims 60 and 61. The software described in Paragraph [0046] does not perform the functions defined in rejected claims 22-30, 33, 34, 52 and 53, which are described elsewhere in the specification (including in the claims as filed). Therefore, the presence of software in Paragraph [0046] is irrelevant to whether claims 22-30, 33, 34, 52 and 53 are statutory.

For at least these reasons, claims 22-30, 33, 34, 52 and 53 should be considered statutory. Applicant advanced these reasons in the previous reply. However, the Examiner has not addressed them, and accordingly applicant is resubmitting them.

For at least the foregoing reasons, applicant respectfully requests that the rejection under 35 U.S.C. § 101 be withdrawn.

Applicant's Reply to the
Prior Art Rejection

Claims 1-14, 17-23, 25-30, 33-43, 46-49, 52, 53, 56, 57 have been rejected under 35 U.S.C. § 103(a) as allegedly being obvious from certain prior art allegedly admitted by applicant, in view of Pilipovic U.S. Patent 6,456,982. This rejection is respectfully traversed.

The Examiner's position is that the example of Brownian motion in applicant's FIG. 1, as described in Paragraph [0029] of the specification, teaches applicant's data gathering and comparison steps, as well as the formerly-claimed limitation of concluding that the system is varying erratically when the actual range equals the expected range. The Examiner then notes that in a method claim, only one of the "when said first range" limitations has to be taught by a reference to establish unpatentability. Finally, the Examiner then relies on Pilipovic for the use of Brownian motion to analyze financial systems, as well as for certain hardware aspects of the apparatus claims, to find the claims obvious in combination with the allegedly admitted prior art.

First, in the previous reply, applicant deleted the "when said first range is equal" limitation from the claims. Therefore, the allegedly admitted prior art does not show even one of the claimed scenarios and the Section 103 rejection should be withdrawn for that reason alone.

Second, as previously noted, applicants disagree that only one of the "when said first range" limitations needs to be shown to render the claim unpatentable. As applicant noted in the previous reply, because the "when" scenarios are positively recited in the logical conjunctive ("X and Y") rather than in the logical alternative ("X or Y" or "one of X and Y"), they cover only situations where the method (or apparatus) meets both of the recited "when" scenarios (even though it cannot meet both at once). This is another reason why the Section 103 rejection should be withdrawn.

Third, applicant disagrees that Pilipovic teaches the use of Brownian motion to analyze financial systems. Pilipovic describes that the prior art does so, but Pilipovic itself teaches away from the use of Brownian motion to analyze financial systems. With regard to Brownian motion, which is described in Pilipovic only in the background section along with other techniques, Pilipovic says (column 4, lines-57-58), "Unfortunately, the above-described methods have drawbacks that have not been solved in the prior art." Pilipovic then goes on to describe and claim its own method. Therefore, one of ordinary skill in the art, reading Pilipovic, would not be led to try Brownian motion analysis to analyze financial markets. Therefore, Pilipovic cannot be combined with the allegedly admitted prior art to render obvious applicant's claims, and the Section 103 rejection should be withdrawn for this reason as well.

To the extent that Pilipovic describes earlier prior art as using Brownian motion, applicant believes that any such prior art, as described in Pilipovic, is not truly based on Brownian motion in that it is described as including a random component and, for reasons previously advanced by applicant, applicant believes that Brownian motion is not random at all.

In reply to this latter argument, advanced by applicant in the previous reply in a different form, the Examiner notes (Action, Page 4, ¶ 7) that page 3 of applicant's own specification recites that a particle undergoing Brownian motion does so because of random motions of neighboring particles. Applicant submits that that is irrelevant in view of the Pilipovic's teaching away from Brownian motion.

In addition, the Examiner notes that nowhere does applicant's specification state that Brownian motion is not random or does not include a random component. Applicant notes in response, however, that applicant is not required to teach what his invention is not, only what it is.

With regard to claims 35-43, 46, 47, 56 and 57, the Examiner further notes that any processor of the prior art would meet those claims unless the processor were claimed as being programmed to accomplish the specific function (which would transform it into a special-purpose machine). Applicant has amended claims 35, 36, 38-40, 46, 47 and 56 in accordance with the Examiner's suggestion and respectfully submits that the corresponding portion of the rejection has been overcome.

For at least these reasons, applicant respectfully submits that the claims, as amended, are patentable over the prior art.

Reservation of Rights

The amendments presented herein are being made solely in order to advance the prosecution of this application. Applicant does not surrender any subject matter thereby, and hereby expressly reserves the right to pursue, in one or more continuing applications, any one or more of the claims as they existed prior to the current amendment, as well as any nonelected invention or species.

Request for Personal Interview

Applicant respectfully request that if, after review of this reply, the Examiner is still inclined to reject the above-identified patent application, the Examiner first telephone the undersigned to arrange a personal interview at the Patent and Trademark Office.

Conclusion

For at least the reasons set forth above, applicant respectfully submits that this application, as amended, is in

condition for allowance. Reconsideration and prompt allowance of this application are respectfully requested.

Respectfully submitted,

/Jeffrey H. Ingerman/

Jeffrey H. Ingerman
Reg. No. 31,069
Attorney for Applicant
ROPES & GRAY LLP
Customer No. 1473
1211 Avenue of the Americas
New York, New York 10036-8704
Tel.: (212) 596-9000